

# ANALYTICA CHIMICA ACTA

An international journal devoted to all branches of analytical chemistry



(Full texts are incorporated in C/JELSEVIER, a file in the Chemical Journals Online database available on STN International; Abstracted, indexed in: Aluminium Abstracts; Anal. Abstr.; Biol. Abstr.; BIOSIS; Chem. Abstr.; Curr. Contents Phys. Chem. Earth Sci.; Engineered Materials Abstracts; Excerpta Medica; Index Med.; Life Sci.; Mass Spectrum. Bull.; Material Business Alerts; Metals Abstracts; Sci. Citation Index)

VOL. 349 NO.1-3

CONTENTS

AUGUST 29, 1997

## Luminescence analysis

- Luminol-specific extrinsic lyoluminescence of X-ray irradiated sodium chloride  
C. Mățăchescu (Republicii, Romania), S. Kulmala, E. Laine (Turku, Finland) and P. Raerinne (Joensuu, Finland) ..... 1
- Rapid flow injection analysis method for successive determination of ammonia, nitrite, and nitrate in water by gas-phase chemiluminescence  
T. Aoki (Sakai, Japan), S. Fukuda, Y. Hosoi and H. Mukai (Kyoto, Japan) ..... 11
- Study and application of a novel probe using twisted intramolecular charge transfer fluorescence  
L. Jianzhong, W. Shoulian, J. Yunbao and X. Jingou (Xiamen, China) ..... 17
- Study of the interaction of Al(III) with a soil fulvic acid in the acid pH range by self-modeling mixture analysis of synchronous fluorescence spectral data  
J.C.G.E. da Silva, A.A.S.C. Machado and C.J.S. Oliveira (Porto, Portugal) ..... 23

## UV-visible spectrophotometry, including kinetic methods

- Simultaneous spectrophotometric determination of chlorpromazine, perphenazine and acetopromazine by use of the kinetic wavelength pair-method  
M.L. Carreto, L. Lunar, S. Rubio and D. Pérez-Bendito (Córdoba, Spain) ..... 33
- Kinetic-mechanistic study of the chlorpromazine-hydrogen peroxide reaction catalyzed by molybdenum(VI) and tungsten(VI), and their differential determination  
T. Tomiyasu (Kagoshima, Japan) ..... 43
- Rapid simultaneous determination of ruthenium and osmium in aqueous solutions of their tetroxides by second-order derivative spectrophotometry  
M. Balcerzak and E. Świącicka (Warsaw, Poland) ..... 53

## Electroanalytical chemistry

- Potentiometric analysis of ionic surfactants by a new type of ion-selective electrode  
M. Gerlache, Z. Sentürk, J.C. Viré and J.M. Kauffmann (Brussels, Belgium) ..... 59
- Surface and kinetic enhancement of selectivity and sensitivity in analysis with fast scan voltammetry at scan rates above 1000 V/s  
C. Hsueh, R. Bravo, A.J. Jaramillo and A. Brajter-Toth (Gainesville, FL, USA) ..... 67
- Adsorptive potentiometric stripping analysis of nucleic acids at mercury electrodes  
J. Wang, D.H. Grant, M. Ozsoz, X. Cai, B. Tian and J.R. Fernandes (Las Cruces, NM, USA) ..... 77
- Disposable thick film modified graphite electrodes for stripping voltammetry  
Kh.Z. Brainina, A.V. Ivanova and N.A. Malakhova (Ekaterinburg, Russian Federation) ..... 85
- Possibilities for the automated determination of trace concentrations of uranium in water samples by adsorptive stripping voltammetry  
S. Sander, W. Wagner and G. Henze (Trier, Germany) ..... 93
- Electrochemical investigations of reactive dyes; cathodic stripping voltammetric determination of anthraquinone-based chlorotriazine dyes at a hanging mercury drop electrode  
M.V.B. Zaroni, A.G. Fogg, J. Barek and J. Zima (Loughborough, UK) ..... 101
- Speciation determination of aluminium (Al<sup>3+</sup>) by flow injection amperometry via the 1,2-dihydroxyanthraquinone-3-sulfonic acid complex  
A.J. Downard, K.J. Powell and S.D. Money (Christchurch, New Zealand) ..... 111
- Nickel speciation of fly ash by phase extraction  
J.L. Wong, J. Qian and C.H. Chen (Louisville, KY, USA) ..... 121

(Continued overleaf)

## Sensors

Physical study of film-forming acrylate emulsion polymers for biosensor applications J.J. Gooding, C.E. Hall and E.A.H. Hall (Cambridge, UK) .....	131
A novel gas-diffusion/flow-injection system coupled with a bulk acoustic wave impedance sensor for total inorganic carbonate and its application to determination of total inorganic and total organic carbon in waters X.-I. Su, L.-h. Nie and S.-z. Yao (Changsha, China) .....	143
Hybrid biosensors to estimate lactose in milk F. Amárita, C.R. Fernández and F. Alkorta (Bilbao, Spain) .....	153

## Enzyme techniques

Coupling of membrane-immobilized enzyme reaction and heteropoly acid-luminol chemiluminescence reaction for the determination of adenosine-5'-triphosphate T. Fujiwara, K. Kurahashi and T. Kumamaru (Hiroshima, Japan) .....	159
Microbial enzymatic assay of glucose in serum M. Zhu, X.-M. Huang and H.-X. Shen (Tianjin, China) .....	165

## Separation techniques

Selective separation and concentration of vanadium(V) by a chemical pumping hollow-fiber supported liquid membrane A. Rosell, C. Palet and M. Valiente (Bellaterra, Spain) .....	171
Simultaneous amperometric determination of some mono-, di-, and oligosaccharides in flow injection and liquid chromatography using two working enzyme electrodes with different selectivity M. Tessaia (Addis Ababa, Ethiopia), T. Larsson (Uppsala, Sweden), T. Buttler, E. Csöregi (Lund, Sweden), T. Ruzgas (Vilnius, Lithuania), M. Nordling, S.-E. Lindquist (Uppsala, Sweden), G. Pettersson (Uppsala, Sweden) and L. Gorton (Lund, Sweden) .....	179
Coupling of column liquid chromatography and surface-enhanced resonance Raman spectroscopy via a thin-layer chromatographic plate G.W. Somsen, S.K. Coulter, C. Gooijer, N.H. Velthorst and U.A.Th. Brinkman (Amsterdam, Netherlands) .....	189
Determination of imidacloprid and its major metabolite in soils by liquid chromatography with pulsed reductive amperometric detection N.R. de Erenchun, Z.G. de Balugera, M.A. Goicolea and R.J. Barrio (Vitoria-Gasteiz, Spain) .....	199
Determination of cephalosporins in urine and bile by capillary zone electrophoresis Y. Mrestani, R.H.H. Neubert (Halle/S, Germany), A. Härtl (Jena, Germany) and J. Wohlrab (Halle/S, Germany) .....	207
Amperometric detection of enzymes in capillary zone electrophoresis based on dynamic modification with surfactants D.-K. Xu, H. Lin and H.-Y. Chen (Nanjing, China) .....	215
A study of the effects of injection mode, on-capillary stacking and off-line concentration on the capillary electrophoresis limits of detection for four structural types of industrial dyes L. Farry, D.A. Oxspring, W.F. Smyth and R. Marchant (Coleraine, UK) .....	221
Evaluation of sulfobetaine-type zwitterionic stationary phases for ion chromatographic separation using water as a mobile phase T. Umemura, S. Kamiya, A. Itoh, K. Chiba and H. Haraguchi (Nagoya, Japan) .....	231
Prediction of retention behavior of ferrocene derivatives in supercritical fluid chromatography R.D. Brauer, T.E. Bitterwolf, N.G. Smart (Moscow, ID, USA), M.D. Burford (Leeds, UK) and C.M. Wai (Moscow, ID, USA) .....	239
Effect of parameters on supercritical fluid extraction of nitro-polynuclear aromatic hydrocarbons from sand M. Barzegar, A. Daneshfar and M. Ashraf-Khorassani (Tehran, Iran) .....	245

## Chemometrics

Regularised nearest neighbour classification method for pattern recognition of near infrared spectra W. Wu and D.L. Massart (Brussels, Belgium) .....	253
Calibration transfer from a scanning near-IR spectrophotometer to a FT-near-IR spectrophotometer J. Lin (Portland, OR, USA), S.-C. Lo (Nashville, TN, USA) and C.W. Brown (Kingston, RI, USA) .....	263
Correction of non-linearities in spectroscopic multivariate calibration by using transformed original variables and PLS regression J. Verdú-Andrés, D.L. Massart (Brussels, Belgium), C. Menardo and C. Sterna (Décines Charpieu Cedex, France) .....	271
Prediction of the selectivity coefficients of a berberine selective electrode using artificial neural networks W.-L. Xing and X.-W. He (Tianjin, China) .....	283
Determination of acid value, hydroxyl value and water content in reactions between dicarboxylic acids and diols using near-infrared spectroscopy and non-linear partial least squares regression R.A. Heikka, K.T. Immonen, P.O. Minkinen, E.Y.Q. Paatero (Lappeenranta, Finland) and T.O. Salmi (Turku, Finland) .....	287
Fourth derivative spectroscopy - a critical view L. Antonov (Sofia, Bulgaria) .....	295
Partial least squares method in the analysis by square wave voltammetry. Simultaneous determination of sulphamethoxypyridazine and trimethoprim J.J. Berzas, J. Rodríguez and G. Castañeda (Ciudad Real, Spain) .....	303

(Continued overleaf)

### *Atomic Spectrometry*

Fast automated determination of toxicologically relevant arsenic in urine by flow injection-hydride generation atomic absorption spectrometry T. Guo, J. Baasner and D.L. Tsalev (Überlingen, Germany) .....	313
Determination of nickel in human scalp hair by slurry sampling – electrothermal atomic absorption spectrometry P. Bermejo-Barrera, A. Moreda-Piñeiro, J. Moreda-Piñeiro and A. Bermejo-Barrera (Santiago de Compostela, Spain) .....	319
Determination of copper, iron, molybdenum and silicon in hydrometallurgically roasted molybdenite concentrate solution by inductively coupled plasma atomic emission spectrometry T. Piippanen, J. Rautiainen and J. Tummauori (Jyväskylä, Finland) .....	327

### *Mass spectrometry*

Identification of laurylamine acetate in water gel explosive by electrospray/mass spectrometry D.T. Burns (Belfast, UK), R.J. Lewis and K. Doolan (Antrim, UK) .....	333
---	-----

### *NMR spectroscopy*

Spin–spin relaxation time determination of intermediate states in heterogeneous products from free induction decay NMR signals D.J. Le Botlan and L. Ouguerram (Nantes cedex, France) .....	339
---	-----

### *Air analysis*

Determination of sub-ppbv levels of formaldehyde in ambient air using Girard's reagent T-coated glass fiber filters and adsorption voltammetry W.H. Chan (Kowloon Tong, Hong Kong) and T.Y. Xie (Guangzhou, China) .....	349
Development of a membrane inlet mass spectrometric method for analysis of air samples R.A. Ketola, M. Ojala, H. Sorsa, T. Kotiaho and R.K. Kostianen (VTT, Finland) .....	359

### *Dang parameters*

Autoprotolysis in aqueous organic solvent mixtures. Water/dipolar protophilic solvent binary systems E. Bosch, G. Fonrodona, C. Ràfols and M. Rosés (Barcelona, Spain) .....	367
---	-----

### *Flow analysis*

Determination of gaseous species by monosegmented flow systems. Volumetric determination of oxygen and carbon dioxide M. do Carmo Hespanhol da Silva and C. Pasquini (Campinas SP, Brazil) .....	377
---	-----

<i>Author Index</i> .....	385
---------------------------	-----